

5 **ABSTRACT****A DECODER FOR A WIRELESS COMMUNICATION DEVICE**

A decoder for a wireless communication device comprising a calculator for calculating the modulo of a linear approximation of a MAX\* function; and a selector for selecting a MAX\* output value from the group  $a(n) \bmod F$ ,  $b(n) \bmod F$ , and the calculated modulo based upon a determination as to whether a predetermined threshold value for  $|a(n) - b(n)|$  has been met, where  $a(n)$  is a first state metric,  $b(n)$  is a second state metric,  $C$  is the predetermined threshold value and  $F$  is a value greater than  $|a(n) - b(n)|$ .

(Figure 4)

20